*TEKS in Focus* highlights key concepts and student expectations to assist educators in implementing the science Texas Essential Knowledge and Skills (TEKS). The vertical progression of a concept within the science TEKS is provided with a side-by-side view of the changes being implemented in 2024.

# Focus: Vertical Alignment of Physical and Chemical Properties Elementary

| Level of Study | Current Science TEKS | TEKS Implementing in 2024 |
|---|---|---|
| Kindergarten | K.5 Matter and energy. The student knows that objects have properties and **patterns**. The student is expected to:<br>K.5.A **observe** and record properties of objects, including **bigger or smaller, heavier or lighter,** shape, color, and texture; and | K.6 Matter and its properties. The student knows that objects have physical properties **that determine how they are described and classified.** The student is expected to:<br>**identify** and record **observable** physical properties of objects, including shape, color, texture, and **material, and generate ways to classify objects.** |
| Grade 1 | 1.5.A classify objects by observable properties such as larger and smaller, heavier and lighter, shape, color, and texture; | 1.6.A classify objects by observable physical properties, **including** shape, color, and texture, **and attributes** such as larger and smaller and heavier and lighter; |
| Grade 2 | 2.5.A classify matter by physical properties, including relative temperature, texture, flexibility, and whether material is a solid or liquid; | 2.6.A classify matter by **observable** physical properties, including texture, flexibility, and relative temperature, and identify whether a material is a solid or liquid; |
| Grade 3 | 3.5.A measure test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float; | 3.6.A measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float **in water;** |
| Grade 4 | 4.5.A **measure, compare, and contrast** physical properties of matter, including mass, **volume**, states (solid, liquid, and gas), temperature, magnetism, and the ability to sink or float; | 4.6.A **classify and describe** matter **using observable** physical properties, including temperature, mass, magnetism, **relative density** (the ability to sink or float **in water**), and **physical** state (solid, liquid, gas); |
| Grade 5 | 5.5.A **classify** matter based on measurable, testable, and observable physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating using water as a reference point), solubility in water, and the ability to conduct or insulate thermal energy or electric energy; | 5.6.A **compare and contrast** matter based on measurable, testable, or observable physical properties, including mass, magnetism, relative density (sinking and floating using water as a reference point), physical state (solid, liquid, gas), **volume**, solubility in water, and the ability to conduct or insulate thermal energy and electric energy; |

## Key Changes in Physical Properties: Elementary

- **Kindergarten:** addition of classification of properties
- **Grades 1–3:** added specificity
- **Grade 4:** added specificity and removed volume
- **Grade 5:** added volume

The upcoming TEKS featured will display removals and additions **in bold** to help build a better understanding of the curriculum.

# Focus: Vertical Alignment of Physical and Chemical Properties Middle School

| Level of Study | Current Science TEKS | TEKS Implementing in 2024 |
|---|---|---|
| Grade 6 | 6.6.A compare metals, nonmetals, and metalloids **using** physical properties **such as luster, conductivity, or malleability;**<br><br>6.6.B **calculate** density **to identify an unknown** substance;<br><br>**6.5 Matter and energy. The student knows the differences between elements and compounds. The student is expected to:**<br><br>**6.5.B recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere; and The elemental composition of the Earth was deleted from middle school.**<br><br>**6.6 Matter and energy. The student knows matter has physical properties that can be used for classification. The student is expected to:**<br><br>**6.6.C test the physical properties of minerals, including hardness, color, luster, and streak.** | 6.6.A **compare solids, liquids, and gases in terms of their structure, shape, volume, and kinetic energy of atoms and molecules;**<br><br>6.6.C **identify elements on the periodic table** as metals, nonmetals, metalloids , and **rare Earth elements based on their** physical properties **and importance to modern life;**<br><br>6.6.D **compare** the density of substances **relative to various fluids;** and |
| Grade 7 | ---------- | ---------- |
| Grade 8 | ---------- | **8.6.C describe the properties of cohesion, adhesion, and surface tension in water and relate to observable phenomena such as the formation of droplets, transport in plants, and insects walking on water;**<br><br>**8.6.D compare and contrast the properties of acids and bases, including pH relative to water; and** |

## Key Changes in Physical and Chemical Properties: Middle School

- **Grade 6:** elements and compounds moved to grade 7. Classification by physical properties moved to elementary. The properties of minerals and elemental composition of Earth were removed. A comparison of states of matter with kinetic energy of atoms and molecules was added. Students are no longer expected to calculate density, but rather, compare densities relative to various fluids.
- **Grade 8:** properties of water (cohesion, adhesion, and surface tension) were added. The properties of acids and bases were added.

The upcoming TEKS featured will display removals and additions **in bold** to help build a better understanding of the curriculum.

# Focus: Vertical Alignment of Physical and Chemical Properties
# High School

| Level of Study | Current Science TEKS | TEKS Implementing in 2024 |
|---|---|---|
| Chemistry | **Chem.4.A differentiate between physical and chemical changes and properties;**<br><br>**Chem.4.B identify extensive properties such as mass and volume and intensive properties such as density and melting point;**<br><br>**Chem.4.C compare solids, liquids, and gases in terms of compressibility, structure, shape, and volume; and**<br><br>**Chem.4.D classify matter as pure substances or mixtures through investigation of their properties.** | |
| | **Chem.5.B identify and explain** the properties of chemical families, including alkali metals, alkaline earth metals, halogens, noble gases, and transition metals, using the Periodic Table; and | Chem.5.B **predict** the properties of **elements** in chemical families, including alkali metals, alkaline earth metals, halogens, noble gases, and transition metals, **based on valence electrons patterns** using the Periodic Table; and<br><br>**Chem.6.B describe the structure of atoms and ions, including the masses, electrical charges, and locations of protons and neutrons in the nucleus and electrons in the electron cloud;** |
| | Chem.10.E **distinguish among types of solutions such as electrolytes and nonelectrolytes; unsaturated, saturated, and supersaturated solutions; and strong** and weak acids and bases; | Chem 12.C **differentiate between** strong and weak acids and bases; |
| | Chem.10.G define acids and bases and distinguish between Arrhenius and Bronsted-Lowry definitions **and predict products in acid-base reactions that form water**; and | Chem.12.B define acids and bases and distinguish between Arrhenius and Bronsted-Lowry definitions; |
| | Chem.10.H define pH and calculate the pH of a solution using the hydrogen ion concentration. | Chem.12.E define pH and calculate the pH of a solution using the hydrogen ion concentration. |

## Key Changes in Physical and Chemical Properties: Chemistry

- Many of the concepts related to introducing physical and chemical properties to students have moved to grades 3–8.
- Basic atomic structure has moved from grade 8 to high school chemistry.
- Defining acids and bases and predicting the products of reactions were split into two separate Student Expectations.
- The types of solutions and acids and bases were split into two separate Student Expectations.

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*TEKS in Focus* spotlights concepts or student expectations to bolster TEKS alignment, rigor, and collective understanding monthly. It does not suggest an order or timing but is designed to help educators comprehend TEKS changes, serving as a guide when relevant to classroom instruction.

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